UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
PAN, DANIEL H

ART UNIT	PAPER NUMBER
2183	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

	Application No.	Applicant(s)
	10/520,469	XU, ZHAOCHANG
Office Action Summary	Examiner	Art Unit	
	DANIEL PAN	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 January 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-11,14-16,20 and 21</u> is/are rejected.

7)☒ Claim(s) <u>12,13,17-19,22 and 23</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>07 January 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>01/07/05</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail. Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Claims 1-23 are presented for examination.

Claim 9 is objected to because of the following informalities: "said sequence net" Line 8 (suggestion : change to --said plurality of sequence net call devices"). Appropriate correction is required.

Claim 9 is objected to because of the following informalities: "a group of data buses" and "a shared clock bus" (Comment: It is unclear what connection and function provided by the group of data buses and the shared clock bus? For example, is the shared clock bus shared by the plurality of computers, or by the plurality of sequence net call devices ?). Appropriate correction is required.

Claim 10 is objected to because of the following informalities: "the highest priority" (suggestion : change to --a highest priority--. Parent claim 9 does not introduce the priority, or the like.). Appropriate correction is required.

Claim 11 is objected to because of the following informalities: "said register" (Suggestion : change to --said weight register--). Appropriate correction is required. See also claim 12, lines 1,7. Claim 13, line 1.

Claim 11 objected to because of the following informalities: "this machine" (Comment : It is unclear what this machine is referring to). Appropriate correction is required.

Claim 11 objected to because of the following informalities: "this weigh of this machine" and "the highest weight of requests" (Suggestion : --A weight associated with a machine-- and --a highest weight associated with requests--). Appropriate correction is required. See also claim 14, lines 13,14.

Claim 13 objected to because of the following informalities: "said right of this machine (usually number of this machine)" (Comment : It is unclear what the right is referring to. Suggestion : --a number assigned to a machine--) . Appropriate correction is required. See also claim 19, line 10, claim 20.

Claim 14 objected to because of the following informalities: "said sequence net call devices instructions" (Suggestion : Change to -- said sequence net call devices including instructions--) . Appropriate correction is required.

Claim 16 objected to because of the following informalities: "said computer writing a request grade" (Suggestion : Change to – a computer--) . Appropriate correction is required.

Claim 19 objected to because of the following informalities: "the system" Line 19 (Suggestion : Change to – a system--) . Appropriate correction is required.

Claim 22 objected to because of the following informalities: "said computer" Line 4 (Suggestion : Change to – said at least one computer-- See claim 20, line 2) . Appropriate correction is required.

Claim 22 objected to because of the following informalities: "should be" Line 8 (Suggestion : Change to – is--) . Appropriate correction is required.

Claim 23 objected to because of the following informalities: "i.e." Line 7 (Suggestion : Change to – which is --) . Appropriate correction is required.

Claim 12 recites the limitation "said permission signal" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "the call instruction" in line 4. There is insufficient

antecedent basis for this limitation in the claim. (Suggestion : Change "a call instruction

of said Sub-Sequence Net").

Claim 14 recites the limitation "said received sequence net call instruction" in

line 9. There is insufficient antecedent basis for this limitation in the claim. (Suggestion :

change to --a received sequence net call instruction--).

Claim 14 recites the limitation "said data bus" in line 15. There is insufficient

antecedent basis for this limitation. (Suggestion : change to –a data bus--).

Claim 15 recites the limitation "the weights of machines" in line 2. There is

insufficient antecedent basis for this limitation. (Suggestion : change to – weights of

machines --).

Claim 17 recites the limitation "the requested grade" in line 2. There is

insufficient antecedent basis for this limitation. (Suggestion : change to – a requested

grade --).

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

Claims 1,2 are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter.

Claim1 is directed to a sub-sequence net comprises a sequence net including

N+1 programs and distributed tokens, and N+1 return instructions. In few of the

specification (Page 8, lines 14-19), the Sub sequence net is a combination of sub-

routines with each branch program ended with return instruction. Therefore, the sub-

sequence net (e.g. see claim 1) is directed to a program per se. Therefore, it is non-

statutory.

As to the dependent claim 2, the additional recited limitations fail to establish that

the claims are not directed to program per se. For example, claim 2 recites single

machine instruction (claim 2, line 1-2). However, the single machine instruction is a

program instruction or a command.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in
public use or on sale in this country, more than one year prior to the date of application for patent in
the United States.

Claims 1-7 are   rejected under 35 U.S.C. 102(b) as being anticipated by Mead

(4,099,230).

As to claim 1, Mead teaches a Sub-Sequence Net (Sub SN), which comprises:

a sequence net including N+I programs (see program sequence under DO and IF in

col.8, lines 52-62)) and distributed data tokens (see the conditions) ; and N+I return

instructions[Undo][Endif]   (see tracking of return after a branch in col.3, lines 20-42,

see also program storage for storing program in fig.1 [20]).

As to claim 2, Mead teaches a call instruction of said Sub SN is a single machine

instruction (see IF as a call, see also a call instruction for a call procedure in col.10,

lines 57-68, see microprogram for machine instruction in col.3, lines 20-42).

As to claim 3, Mead teaches call instruction calls a Sub SN by activating a calling Sub
SN device[call label] (see call instruction placing a label of a procedure on bus in
col.10, lines 58-66, see also fig.fig.2 [Label Table 28]) .

As to claim 4, Mead teaches a calling bus device [Label Table 28] for establishing a
connection between said call position [return position] of single machine and said Sub
SN [procedure] (see the stack to store the return locations of corresponding procedure
calls in col.11, lines 11-30).

As to claim 5, Mead teaches calling Sub SN device [Label Table] is initiated by a single
machine sequence net call instruction (see load program counter instruction in col.10,
lines 62-66,and the up-down counter to initiate call in col.11, lines 24-30) whose call
parameters [label] is transmitted to N+1 units by broadcasting (see current procedure
and next procedure as N +1 units), the call parameters are used as a call entry address
of N+I branch programs of said Sub SN (see label of a procedure being placed on the
bus as the starting address of the procedure in col.11, lines 42-48) , the N+I branch
programs are on site protection and exit by return instructions (see the next return of
another procedure call in col.11, lines 68).

As to claim 6 Mead teaches an activating device [label] for calling instructions from a
sequence net call instruction [branch] of a single machine to N+I parallel programs (see
the branch to multiple ways in co.7, lines 36-53).

As to claim 7, Mead teaches a contention device [priority encoder] for processing a
number of requests simultaneously (see the priority encoder for the interrupt requests in
col.15, lines 22-49).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mead (4,099,230) in view of Potash (2002/0103847).

As to claim 8, Mead does not specifically teach the transmission of call parameters from serial program to parallel programs, as claimed. However, Potash teaches an interrupt initiation device (see fig.4a and 4b) for transmitting call parameters [A call instruction] from serial program to parallel programs [thread C and thread B], and a paralleled interrupt initiation device (see the interleaved execution and the data sent from A to B and C in [0037], see also the multiple concurrent threads in [0038]). It would have been obvious to one of ordinary skill in the art to use Potash in Mead for including the interrupt initiation device as claimed for the purpose of simultaneously providing communication with the concurrent multiple threads or tasks (see Potash [0038]).

Claims 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Burns et al. (5,958,036).

As to claim 9, Burns teaches a Sub-Sequence Net (Sub SN) calling system, which

comprises:

a plurality of computers (not explicitly sown, but see register 10 for assigning priority for

requests from different hardware devices in col.2, lines 50-52, col.3, lines 16-23, see

also hardware devices could be printer, modem, input devices etc in col.1, lines 11-19);

a plurality of sequence net call devices for handling call contentions, saving sequence

net call parameters, and identifying sequence net call instructions (see fig.1 [30, 40-

1,40-2,40-3], col.8, lines 5-20); and

a group of buses [50][60]for connecting the sequence net call devices together, the

group of buses comprising:

a call initiating bus [50] for receiving a initiating level sent by one call device of said

sequence net ([62-1,62-3,62-3]), ;

a group of data buses [59-1,59-2,59-3]; and

a shared clock bus (see arbitration within one clock cycle in col.1, lines 65-67).

As to claim 10, Burns teaches a call request device for receiving sequence net call

instructions, generating a initiating level in next clock pulse, and delivering the initiating

level to said initiating bus   (see interrupt detector 40-1,40-2,40-3 for detecting the

interrupt levels in col.4, lines 59-65);

a call contention device [see arbitrating circuit 50] for arbitrating a call of the highest

priority as valid (fig.5);

call parameters and interrupt devices [52-1,52-2,52-3], for determining a source of

sequence net call parameters based on outputs of said call contention devices, and

sending a interrupt level via said bus (see col.7, lines 55-67, col.8, lines 1-4).

As to claim 11, Burns teaches a weight register [mask] of this machine, and comparison

device for saving comparing the weight of this machine [current level] with the highest

weight of requests in order to determine if this machine is the source of sequence net

call parameters (see the sorting of the pending interrupts and the highest priority level

bit passed to decision selection circuit 60 in col.4, lines 31-57).

     Claims 14,15,16, 20,21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Burns et al. (5,958,036) in view of Mead (4,099,230).

As to claim 14, Burns teaches :

 a) said sequence net call devices instructions [interrupt requests] for calling the

sequence net [interrupt routines] from the plurality of computers (see interrupt routine

instructed by interrupt request [call devices instructions] as the sequence net in col.1,

lines 11-18) ;

b) sequence net call device [mask][detector 40] of said received sequence net call

instruction sends a initiation level [priority levels] via a initiation bus to all sequence net

call devices (see fig.1);

c) when sequence net call device [mask][detector 40] of said receiving sequence net

call instruction detects said initiation level (see pre-assigned level in col.4, lines 10-25)

existed in said initiation bus, the sequence net call device of said receiving sequence

net call instruction sends the weight of this machine to said data bus [logic 1 for pending

interrupt]; then the weight of entire system on the said data bus is written in a temporary

register by said sequence net call device (see the mask for preassigned levels in col.3,

lines 51-56); and

d) the sequence net call device of said receiving sequence net call instruction compares

the highest valid bit (=1) of the temporary register (see the highest bit) with the weight

of this machine (logic1 for pending interrupts), the call of said sequence net call device

is valid for valid comparison and invalid for an invalid comparison (see LBD detector for

each level as valid comparison); at least one call [leading bit] made by sequence net

call device of receiving sequence net call instruction will be valid (see pre-arbitration of

pending multiple interrupts of the same level in col.4, lines 34-42).

Burns does not specifically show the sequence net including N+I programs and a

distributed data token structure; and N+I return instructions, as claimed. However, Mead

teaches a Sub-Sequence Net (Sub SN), which comprises:

a sequence net including N+I programs (see program sequence under DO and IF in

col.8, lines 52-62)) and distributed data tokens (see the conditions) ; and N+I return

instructions[Undo][Endif] (see tracking of each return after a branch in col.3, lines 20-

42, see also program storage for storing program in fig.1 [20]). It would have been

obvious to one of ordinary skill in the art to include the N+1 programs, the distributed

data tokens, and the return instructions as claimed because Burns already teaches an

interrupt routine is instructed (called) by an interrupt request , and it is recognizable by

one of ordinary skill in the art each interrupt routine has to end with a return instruction

or an exit for providing structured programming (col.1, lines 54-57) . Mead is used

because it shows well know art of return instruction with corresponding routine.

As to claim 15, Burn teaches "or" operation of the weights of machines sending by

sequence net call device of said received sequence net call instruction, to produce the

weight of entire system (see the interrupt taken at OR gate as the entire weight in col.8,

lines 20-26).

As to claim 16, Burns teaches a grade call instruction [IPL] for supporting grades of

system is generated by at least one computer (e.g. see 00 disable the interrupt in col.3,

lines 10-15).

As to claim 20, Burns teaches sending a sequence call request for supporting ordered

events and complicated program structures (see interrupt routine request with priority

level in col.1, lines 14-28).

As to claim 21, Burns teaches designating a next sequence call by writing the next

register of all sequence net call devices (see register 10 as the register for

writing/receiving next sequence call in col.2, lines 50-52).

Upon applicable pending conditions of the objections and "101" as set forth in

this action, claim 12,13,17-19,22,23 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims. None of the prior art of
record further teaches :

a) The system grade register and a request grade register, when said sequence net
call device receives an request of grade call, if the output of said request grade register
is greater than the output of said system grade register so that said call request device
generates a initiation level to said initiation bus whereas the output of said request
grade register is smaller than the output of said system grade register, the said register
and comparison devices do not generate said permission signal and thus no initiation
level is generated (claim 12).

b) The sequence call register (named next register) indicating the next right of sequence
call, when said sequence net call device receives a sequence call request, the output of
said next register is compared with said right of this machine (usually number of this
machine), if the comparison result indicates that the output of said next register and said
right of this machine is same, a initiation level is generated, otherwise, a initiation level
is not generated (claim 13).

c) The multiple sequence net call devices receive a request of sequence call
instructions from said computer; and the comparison of the next register (usually the
next number of machine) with the right (usually the number) of this machine, the said
sequence call request is allowed for an affirmative comparison, otherwise the sequence
call request of sequence net call device should be invalid and no initiation level will be
sent to said initiation bus (claim 22).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Franke et al. (2003/0172215) is cited for the teaching of arbitrating a call of highest priority (see [0014]).

b) Poplingher et al. (6,185,676) is cited for the teaching of arbitrating a call of highest priority and the valid call of net call device (see col.5, lines 1-20, col.5, lines 39-47).

c)Yeh et al. (6,427,206) is cited for a sequence net including a return instruction (see col.3, lines 62-68, col.4, lines 1-2)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL PAN whose telephone number is (571)272-4172. The examiner can normally be reached on M-F from 8:30 AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan, can be reached on (571)272 4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal.

Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel Pan/

Primary Examiner, Art Unit 2183